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ABSTRACT

The study was designed to identify the factors, priorities, and information needs of vocational educational planners in Minnesota. Questions were formulated which focused on types of vocational programs, number of programs, schedule, and location of programs. Procedures for identifying factors, priorities, and information needs included (1) use of simulation and content analysis, (2) developing simulation exercises and an information base, (3) developing data collection and analysis techniques, and (4) pilot testing of procedures. Participants of the study (educational planners from local and State educational agencies involved in vocational education, persons outside vocational education, and persons not involved in education) underwent eight simulation exercises in two days. A content analysis of the written individual position papers and the tape recorded group sessions for each of the exercises was conducted. There were 173 factors cited which were categorized under satisfaction, satisfactoriness, efficiency, alternative sources, quality, equal opportunity, legal, and mutual satisfaction. A discussion of the results and implications of the study are presented. A list of five recommendations is included. Appended materials include a description of a pseudo State, a sample simulation exercise, factors cited by participants, and information requested by participants. (Author/EC)

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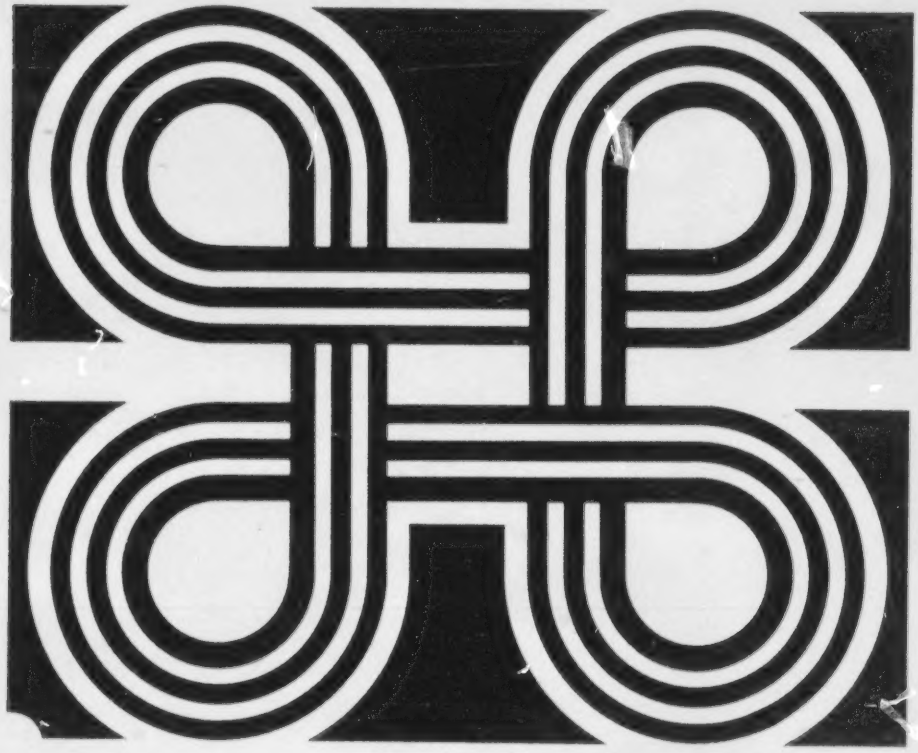
Factors, Priorities, and Information Needs in Planning Vocational Education:

VIEWS OF SELECTED EDUCATIONAL PLANNERS IN MINNESOTA

by George H. Copa, Erwin K. Geigle, and U. O. Imade



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March 1976

PREFACE

In order to assist in the process of planning vocational education, a knowledge of the important variables and data requirements is of benefit. The purpose of this study was to identify the factors and information needs of educational planners in Minnesota as they face decisions in planning vocational education. Further, the study was to identify the relative priority of these factors and ascertain if it varies between: (1) planners at the state versus local educational agency and in vocational education versus outside of vocational education and (2) type of planning decision (e.g., what program to offer versus where to locate the program). For us, an important use of the findings of the study is in developing a model or strategy for planning vocational education in the State.

The procedure used to collect the data was to involve a small, select group of educational planners in Minnesota as participants in a series of simulation exercises where they faced several "dilemmas" in planning vocational education. Their individual responses and group interaction were monitored very closely. Responses and interactions were content analysed in order to obtain a more objective description of the educational planners' concerns.

The study would not have been possible without the assistance of several of our colleagues and simulation participants. Special acknowlegements are due: Dr. Donald Irvin, Jr. who helped write the first draft of the simulation exercises and assisted during the workshop sessions; Dr. Gary Leske who acted as an outside reviewer for the exercises and analysis format; Mr. Robert VanTries who allowed us to first test a few of the simulation exercises in his class on vocational education administration; the graduate students in the Department of Vocational and Technical Education at the University of Minnesota who first pilot tested the full simulation process; most important, the group of selected educational planners from Minnesota who conscientiously worked through the simulation exercises with a spirit of interest and cooperation; and Dr. Jerry Moss, Jr. and Dr. William Stock who offered several helpful comments on a draft of this report.

THE MINNESOTA RESEARCH COORDINATING UNIT FOR VOCATIONAL EDUCATION performs the following four functions in behalf of the State and national systems of vocational education:

1. Stimulate, facilitate and coordinate innovative research and development efforts.

2. Disseminate research-related information to assist research and development efforts and to speed the implementation of worthy educational innovations.

3. Increase the number and improve the competence of producers and consumers of vocational research-related materials.

4. Create knowledge and useful products that have potential for making long-range and general qualitative improvements in vocational education.

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CHAPTER I

CONTEXT FOR ASSESSING FACTORS, PRIORITIES, AND INFORMATION NEEDS

Limited resources, the appearance of viable alternatives to expenditures on education, decentralization in decision making and the stress on accountability have resulted in a recent re-emphasis on planning in education.[1] This trend is made explicit by the new vocational education legislation being proposed.[2] In order to deliver the planning capacity being requested, the planning process itself must be re-examined in terms of recent changes affecting vocational education. Some of these changes in Minnesota have been:

1. change in education's clientele groups with the decrease in elementary and secondary enrollments and increased stress on meeting the educational needs of adults;
2. change in educational organization with move to sub-state educational planning regions and secondary school cooperative education centers, both vocational and academic;
3. change in educational finance with an increased role of the state through new state aid formula and taxing limitations and new "added cost" formula for funding vocational education; and

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[1] Several of these variables were treated by several speakers at the 1973-74 Schoolmen's Day Conference sponsored by the Division of Educational Administration, College of Education, University of Minnesota and published in Minnesota Education, Volume 1, Number 3, Spring, 1974.

[2] Both the current American Vocational Association and Executive Branch's new legislative proposals for vocational education have sections explicitly authorizing the use of federal fund to initiate and develop an improved program planning capacity at the state level.

4. increased importance of cultural values such as equal rights for women, affirmative action, and consumer protection in planning, managing, and evaluating educational programs.

Only if the planning process, which results in program decisions, is made explicit can it be critically examined in terms of its ability to result in plans which meet the needs of the people in our changing society. Absence of an explicit description of the planning process and its subsequent examination can result in plans for the planners which bear little relationship to the wishes of the constituency for which the plans are made. Also important, the defining and examination of the planning process are critical steps in the developmental stages of building an educational agency's planning capacity.

PURPOSE OF STUDY

The purpose of this assessment was to identify the factors, priorities, and information needs important in planning vocational education as described by a selected group of educational planners in Minnesota. The educational planners identified were to include those in vocational education, as well as persons in education but outside of vocational education, and persons entirely outside of education; also the educational planners were to represent both the state and local educational agencies concerned with vocational education. The factors, priorities, and information needs identified will be used in formatively evaluating a proposed model for planning vocational education.[3]

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[3]Copa, George H. "Planning Vocational Education", Minnesota Research Coordinating Unit for Vocational Education, University of Minnesota, Minneapolis, Minnesota, in unpublished draft form.

Formative evaluation is being used to evaluate and extend the proposed model while it is under development.[4] The results of this assessment of educational planners will be used to improve the characteristics of the model so that it better fits reality and allows more effective planning.

KEY QUESTIONS IN PLANNING VOCATIONAL EDUCATION

In order to focus the assessment, a set of key questions faced in planning vocational education were formulated. These questions were derived from the conceptual framework underlying the planning model being posed for vocational education.[5] As stated previously, the intent of this assessment was to obtain input from educational planners in Minnesota as one input to the development of the planning model and providing responses to these key questions. The questions posed were:

1. What vocational education programs should be offered in the state?
   - 1.1 What are the potential program alternatives under the federal vocational education legislation?
   - 1.2 What programs should be offered in public schools and which should be left to private training sources (e.g., private vocational

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[4] In addition to this report, another means of formative evaluation is an extensive review and analysis of past literature dealing with planning vocational education programs. The results will be published as "An Analysis of Ideas and Efforts: Planning Vocational Education."

[5] See footnote 3 above for the reference containing a complete description of the conceptual framework and its rationale. Further discussion of the related or alternative conceptions is presented in the reference cited in footnote 4 above.

schools, industry sponsored programs)?

1.3 How should vocational education and general education relate?

1.4 What programs should be offered at the various levels of vocational education (e.g., secondary, post-secondary, adult)?

1.5 How are decisions between various program areas within vocational education made (e.g., between agriculture and distributive education programs)?

2. How many programs should be offered?

2.1 How are individual demands (e.g., people needs) reconciled with manpower demands?

2.2 What should be the extent of focus on target populations (i.e. handicapped, minorities)?

3. When should programs be offered?

3.1 When should a program be deleted?

3.2 When should a program be added?

4. Where should programs be geographically located?

These questions served to limit the type of input obtained in this study from educational planners in Minnesota. The next problem was then to select a data collection procedure which would be attractive to educational planners and allow maximum input for the limited time they were able to devote to the study.

CHAPTER II

PROCEDURE FOR IDENTIFYING FACTORS, PRIORITIES, AND INFORMATION NEEDS

As stated at the end of the previous chapter, the data collection procedure had to meet several criteria. The procedure had to: 1) focus on pre-defined questions, 2) appear relevant and practical, 3) result in specific responses, 4) allow for independent response in own words as well as interaction, 5) be efficient in terms of time needed, and 6) yield objective information. A combination of simulation exercises and content analysis was selected to meet these criteria.

USE OF SIMULATION AND CONTENT ANALYSIS

Simulation has often been used in education as a teaching device but much less often as a research tool. As a research tool, it offered the advantages of: 1) focusing responses, 2) dealing with "real" problems, 3) resulting in specific responses, 4) providing for interaction between participants as well as independent response, and 5) efficiency in terms of participant time. Its major disadvantage was the subjectivity required in analyzing the participant responses during and after the simulation activities.

To overcome this disadvantage, content analysis was chosen to summarize the results of the simulation activities. Content analysis is "a research technique for the objective, systematic, and quantitative description of the manifest content of communication".[6] Content analysis is conducted so as: "1) to create reproducible or 'objective' data, which 2) are susceptible to measurement and quantitative treatment, 3) have significance for some

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[6] Berelson, Bernard. "Content Analysis". Chapter 13 in Handbook of Social Psychology: Volume I: Theory and Method, Gardner Lindzey, editor, Addison-Wesley Publishing Company, Inc., Reading, Massachusetts, 1953, p. 489.

systematic theory and 4) may be generalized beyond the specific set of materials analyzed"[7] The objectivity stems from specification of variables or dimensions to be observed, the categories of each variable, the operational definitions of each variable and the adapation of an analysis outline for the materials being analyzed.

In combination, the use of simulation and content analysis provided a data collection procedure which met the criteria required to get meaningful and maximum input from the selected group of educational planners. The next section explains how the simulation activities were developed.

DEVELOPING SIMULATION EXERCISES AND INFORMATION BASE

Several materials had to be developed to make the simulation activity viable; these were: 1) develop a scenario, 2) select roles, 3) select issues, 4) select a format, and 5) produce exercises. The scenario is the setting for the simulation activities.[8] In order to reduce any biases and promote free discussion among participants, a pseudo State was created and information characterizing the State was developed.[9] A description of the pseudo State and some of its characterizing information is provided in Appendix A.

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[7] Festinger, Leon and Daniel Kahz (editors). Research Methods in the Behavioral Sciences. Chapter 10: "Analysis of Qualitative Material" The Dryden Press, Inc., New York, 1953, p. 435.

[8] Benson, Dennis K., Colleen McMahon, and Richard H. Sinnreich. "The Art of Scenario Design". Simulation and Games, Volume 3, Number 4, December 1972, pp. 439-463.

[9] The simulation package "An Interaction Simulation: Coordinated Local-State Vocational Education Planning", by Darrell L. Ward and Jimmy G. Koeninger, The Center for Vocational and Technical Education, the Ohio State University, 1971, provided several ideas for designing the scenario and simulation format. Personal discussions with Darrell L. Ward resulted in suggestions for the procedure used in developing and pilot testing the simulation exercises described in this report.

Roles to be placed in the simulation activity were selected on two dimensions. First, roles were selected so as to provide input from representatives of vocational education, education in general, and persons outside of education. On the second dimension, roles were selected to provide input from all levels of concern; that is from state as well as local educational agencies and within the local educational agencies, from secondary and post-secondary schools. To meet these requirements the roles selected were:

J. Rowe	Director, Planning and Development Section, Division of Vocational-Technical Education, State Department of Education
K. Nay	Supervisor, New Programs, Program Operations Section, Division of Vocational-Technical Education, State Department of Education
W. Crawford	Consultant to Commissioner of Education, Planning and Curriculum, State Department of Education
R. Land	Director, Girth Area Vocational-Technical Institute
J. Mirth	Director, Shank Secondary Vocational Center
L. Saxor	Superintendent, Poll School District
H. Klone	Vocational Teacher, Shank Secondary Center
D. Jinks	Director, Vocational Education, Crop School District
C. Mayes	Representative in State Legislature from Boot County

In order to make the simulation activities interesting, raise serious thought in a short time, and make them as real and practical as possible, the activities were posed as a series of exercises dealing with dilemas faced in planning vocational education. Eight exercises were developed to cover the key questions posed earlier. The exercises had the

following titles:

1. For What Occupations Could Vocational Education Provide Training?
2. Where Should Programs Be Located?
3. At What Level Should the Program Be Offered?
4. Who Should Provide Training (Public vs. Private)?
5. Manpower vs. People Needs?
6. Should You Recruit?
7. Vocational Education and General Education?
8. Relationship Between Program Areas?

The relationship between the exercises and coverage of key questions is shown in Table 1. Each exercise is directed at a single question except for exercise seven and eight which each cover two questions. The simulation exercises were sequenced to form a logical flow of questions from general to specific.

Format for the exercises was in the form of a memorandum or letter to the participant explaining the problem and calling for specific responses. A sample exercise is provided in Appendix B. Two response modes were used to insure an independent response from each participant and a group interaction response. Each exercise called for the participant to provide a position paper with a pre-specified format describing their judgments about a particular problem and then a group session to discuss positions and, if possible, arrive at a consensus. Although consensus was strived for, it was not necessary where real differences of opinion were evident - one of the purposes of the group interactive sessions was to identify such differences.

Exercises were developed analogous to real situations known to the authors. After all exercises were developed, they were reviewed by an outside consultant using the criteria:

1) Will the exercises achieve the desired objectives (i.e., identify important factors, priorities, and information needs)?

TABLE 1

RELATIONSHIP BETWEEN SIMULATION EXERCISES AND KEY QUESTIONS IN PLANNING VOCATIONAL EDUCATION

KEY QUESTIONS	EXERCISE NUMBER 1	2	3	4	5	6	7	8
1. What programs to offer?								
1.1 What programs are legal?	X							
1.2 Public vs. private sponsorship?				X				
1.3 Vocational education vs. general education?							X	
1.4 At what level?			X					
1.5 Which program area?								X
2. How many programs to offer?								
2.1 Manpower vs. people needs?					X			
2.2 Focus on target population						X		
3. When should program be offered?								
3.1 Program deletion?								X
3.2 Program addition?							X	
4. Where should program be located?		X						

2) Does each exercise relate to each key question to which it has been assigned as described in Table 1?

3) Does the evaluation process and response form, specific to each exercise, seem appropriate?

4) Mechanically, are the simulation exercises operational; will they produce the necessary thinking and discussion?

Using suggestions for improvement from the outside consultant, the exercises were revised and preparation made for pilot testing.

One other component of the simulation activity was an information base for use by participants during the exercises. Participants were provided only very general information about the scenario (e.g., location,

population) before moving to the exercises. The exercises, themselves, were not designed to provide a lot of background information; rather, participants were asked to request any information they felt was needed in order to respond to the exercise. Special "information request" forms were prepared which requested name of participant, exercise number, specific information being requested, and an explanation of how the information was planned to be used. These requests were later analyzed to respond to one of the objectives of this study: What are the information needs for planning vocational education of educational planners in Minnesota?

In order to construct the information base, each exercise was analyzed for possible information which might be requested by participants. Each of these potential information needs was provided for by simulating a set of data based on the psuedo State. The purpose of the information base was to be able to provide a response to each information request so that "lack of information" would not be used as a limitation or excuse by the participants for not making a decision on a given simulation exercise.

DEVELOPING DATA COLLECTION AND ANALYSIS TECHNIQUES

As described earlier, content analysis was selected as the research tool to lend objectivity to the analysis of the results of the simulation activities. In order to provide independent responses from each participant and group interactive responses, participants first were given time to prepare a position and then met in a group to discuss their responses. So as to capture their responses in their "own words", individual position papers were collected and the group sessions were tape recorded.

Content analysis was then performed on the written position papers and the tape recorded group sessions. In constructing the analysis outline, the factors considered were: 1) specific data needs based on analysis reporting tables, 2) plan for tabulation, 3) variables or units to be enumerated, 4) categories for each variable, 5) procedure for unitizing the materials,

and 6) try out of analysis procedure.

The specific needs from the content analysis were quantitative and objective responses to the following questions:

1) What factors (variables) were used in making decisions concerning the questions posed through the simulation exercises?
   - 1.1) Did the factors vary between exercises?
   - 1.2) What factors were used when the results from all exercises were combined?
   - 1.3) What were the operational definitions of the factors used?
2) What was the priority associated with each factor used in making decisions concerning the questions posed through the simulation exercises?
   - 2.1) Did the priority of factors vary between exercises?
   - 2.2) What were the priorities associated with the factors when the results from all exercises were combined?
   - 2.3) Did the priorities associated with factors vary between participants working specifically in vocational education and those who were not?
   - 2.4) Did the priorities associated with factors vary between participants working at the state versus local educational agency level?
   - 2.5) Were the priorities associated with factors stable between pre-and post-group interaction sessions?
3) What were the information needs of the participants in making decisions concerning the questions posed through the simulation exercises?
   - 3.1) What information was requested?
   - 3.2) Which information was requested by most participants?
   - 3.3) Was different information requested by participants working specifically in vocational education and those who were not?

3.4) Was different information requested by participants working at the state versus local educational agency level?

The plan for tabulating data was developed so as to provide responses to the questions posed above. Tabulation sheets were laid out to provide data relating to each question; the data was hand tabulated.

The variables enumerated were: 1) factors used in justifying decisions or points of view, 2) individuals citing factors, 3) if a factor was cited in individual or group sessions, 4) simulation exercise in which the factor was cited, 5) frequency with which the factor was cited, and 6) the type of information requested (participant name and exercise). Each factor or type of information requested was taken in the exact words in which it was communicated. Factors represented the variables the participants used in justifying their positions on the selected vocational planning issues. The information requests represented the specific kind of data needed to interpret the affect of the factors in taking a particular position on the issue; in some ways, it represented a more operational definition of the factors. Before summary, the factors were categorized into relatively independent major factors for data presentation.[10] Operational definitions of the major factors were formed by listing all the factors identified throughout the simulation activity which were judged to fit under each of the major factors.

The specifications for each variable were: the factor was not used or the factor was used; when the factor was used, a frequency count of its use was recorded. Frequency was chosen as the measure of priority (e.g., those factors cited most often were assumed to be of highest importance). Frequency was used as an indicator of priority because it would identify factors

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[10] Major factors were pre-specified using the conceptual framework described in the proposed model for planning vocational education. See Copa, George H. "Planning Vocational Education".

cited by several participants, factors cited in several exercises, and factors cited in both individual position papers and group discussions. Frequency was also a characteristic which could be more objectively observed than alternative indicators such as the "force" with which a factor was cited. The procedure used in unitizing the content was first to review all the individual position papers and tape recording for the total simulation activity. Second, the variables were enumerated as described above starting with exercise one. The unit for enumerating factors was usually a phrase (several words). If there was any question about whether two factors were the same, they were both recorded separately.

PILOT TESTING OF PROCEDURES

Pilot testing of the simulation activities and content analysis was conducted in two stages. In the first pilot test, two simulation exercises were selected for tryout with a graduate class in vocational education administration. Students in the class were assigned to the roles cited earlier for the simulation activity. Content analysis of the exercises was conducted and reported to the class. Results of the first pilot test resulted in more accurate time estimates for the exercises, changes in the exercises which would more successfully prompt discussion, and suggestions for an improved information base for the simulation activity.

The second pilot test of the activity was much more extensive. Graduate students in vocational education with varying backgroud (e.g., teachers, administrators, counselors) assisted in testing the full simulation activity with all exercises. A graduate student was selected to fill each of the simulated roles. Testing was done on a weekend in a period of twelve (12) hours. It was found that the exercises were very successful at promoting discussion and mixed positions on various issues. Interest of participants was maintained at a high level over the two day period. Content analysis of the results of the exercises revealed that over 100 factors were used by the participants in the various exercises with widely differing priorities.

After the second pilot test, the exercises were put into final form. Major changes were made in the management of the exercises and participants and the information base was expanded. At this point, it was decided that the simulation activity and content analysis procedure were ready for actual operation.

CHAPTER III

USING THE PROCEDURE WITH SELECTED EDUCATIONAL PLANNERS IN MINNESOTA

The purpose of this study was to obtain input from selected educational planners in Minnesota concerning the factors, priorities, and information needs important in planning vocational education. Simulation activities were developed to focus the input, to make the process interesting and realistic, to gain individual and group input in "their own works," and to do the job efficiently. Content analysis procedures were formulated to analyze the resulting data in quantitative fashion.

SELECTING SAMPLE OF PARTICIPANTS

Participants were selected in cooperation with the Minnesota State Department of Education using the following criteria. Persons selected were to be: (1) knowledgeable about the factors which should be considered in planning educational programs, particularly as they relate to the roles to be filled in the simulation activity, (2) experienced in planning programs, (3) willing and able to openly express their opinion regarding factors and priorities and entertain new alternatives, ( ) take seriously the business of planning, and (4) represent several groups who have input in planning vocational education (e.g., teacher--administrators; state department--local school; secondary--postsecondary--adult level programs; vocational education--general education; and education--non-education). The list of participants and the group they represented is shown in Table 2.

CONDUCTING SIMULATION EXERCISES

Prior to actually conducting the simulation exercises, two considerations were imminent - when and where. Since the participants held responsible positions in their respective agency, it was extremely difficult to specify a time period which was mutually convenient for

TABLE 2

SIMULATION PARTICIPANTS AND THE GROUPS THEY REPRESENT

Participant	Function		Level			Educational Agency		Major Concern		
	Teacher	Administrator	Secondary	Post-Secondary	Adult	Local	State	Vocational Education	All Education	All Sponsored Activity
Ms. Joyce Claque Minnesota Senate Research Dept.							X			X
Mr. Stan Edin, Assistant Director Staples Area Vocational-Technical Institute		X		X		X		X		
Dr. Floyd Keller, Director of Instruction MN State Department of Education		X	X	X	X		X		X	
Ms. Gen Olson, Director Secondary Vocational Education Anoka-Hennepin District 11		X	X			X		X		
Mr. Roger Palmer, Former Area Coordinator Duluth Area Vocational-Technical Institute	X				X		X	X		
Dr. Thomas Stark, Superintendent Mankato Public School System		X	X	X	X	X			X	
Dr. William Stock, Consultant, Vocational Technical Education Minnesota State Department of Education		X	X	X	X		X	X		
Mr. Gordon Williams, Supervisor of Industrial Occupations Programs MN State Department of Education		X	X	X	X		X	X		
Mr. Dick Young, Director Oakland Secondary Vocational Center		X	X		X	X		X		

everyone concerned. After several attempts to schedule a time period, numerous phone calls, and altering of individual (participant) calendars, a definite time period of two days was specified for conducting the simulation exercises. The second consideration was where should this group session be held in order to have as few interruptions as possible and a participant feeling of being removed from job concerns and problems. The twenty-second floor (top floor) of a major motel[11] was chosen to meet these criteria.

The eight simulation exercises were to be conducted in two days, consequently a specified plan including a time schedule had to be adhered to rather closely. Organization and planning were carried to great lengths prior to beginning the simulation exercises. Tape recorders, name tags, catered coffee and pastry, tables, chalk boards, overhead projectors, et cetra were a few of the many items which required attention before the exercises could begin.

An informal "get-acquainted" session, orientation period, and two simulation exercises were held the first half-day of the data collection phase of this research effort. During the next two half-days, five simulations were conducted. The last half-day consisted of one simulation and a summary session.

The participants arrived at 8:30 a.m. and departed at 4:30 p.m. each of the two days. Two coffee breaks were held per day in addition, of course, to the noon lunch. Interruptions from the participants' employing agencies and personal sources were infrequent and were not considered to have any effect upon the participants' responses.

To give the reader an appreciation of the operational aspects of conducting the simulation exercises, the following renditions is presented:

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[11] Radisson South Hotel, Minneapolis, Minnesota.

During the participants' arrival for the informal get-acquainted session, each participant was greeted by at least one of the four individuals involved in conducting the exercises. Hot coffee and fresh pastry were offered to each participant as he/she was introduced to the people already present. Each participant was then given his/her psuedo name and then became acquainted with the others.

After the informal session, an orientation period was held. The participants were 1) informed about the purpose of this research activity and its relationship to program planning, 2) that individual responses would be kept confidential, 3) of identified individual booths where they would prepare their individual positions for each simulation exercise, 4) not to discuss the exercises with each other before group sessions, 5) to be seated for the group sessions according to the psuedo name seat assignment, 6) that the group sessions were to be tape recorded, 7) of the "Information Bank" which contained data pertinent for the exercises and that they had to request the information they wanted in writing on the appropriate form, and 8) that questions can be answered by any one of the four people helping to conduct the exercises. In addition, each participant was given the background information on the psuedo state which would form the context for the simulation exercises (Appendix A). The informal session and the orientation period took approximately one hour and the time was now 9:30 a.m.

After several questions, Simulation Exercise No. 1 was passed out to the participants and each participant was asked to complete his/her individual position paper at their respective booths. Thirty minutes were allowed for participants to prepare their individual position papers. Several requests for data were submitted to the Information Bank during the 30 minutes. After 30 minutes, the participants were asked to meet as a group and attempt to arrive at a consensus regarding "For What Occupations Could Vocational Education Provide Training?" (Simulation Exercise No. 1). The group sessions were usually conducted by one of the participants identified in the simulation exercises. Twenty minutes was allowed for the group discussion which was tape recorded.

The individual position papers from the first simulation were collected and Simulation Exercise No. 2 was handed out. The time was now 10:30 a.m. -- enough time to conduct the second simulation before lunch time.

Conducting the eight simulation exercises on the twenty-second floor of a hotel over two days proved to be successful. The participants delved into each simulation exercise with interest and enthusiasm. They appeared to have forgotten about immediate problems and responsibilities of their employment positions.

RESULTS OF CONTENT ANALYSIS

Content analysis was performed using a pre-determined format on the written individual position papers and the tape recorded group sessions for each of the eight simulation exercises. Table 3 below enumerates the factors which were yielded by content analysis on the responses from the simulations. The factors were tabulated in the exact words in which they were communicated which usually consisted of several words or a phrase.

TABLE 3

NUMBER OF FACTORS CITED BY PARTICIPANTS IN SIMULATION EXERCISES

Factors Cited and Used	Number
Different Factors Cited in Simulation Exercises	173
Factors Cited Two or More Times	82
Factors Cited in Two or More Simulation Exercises	13
Number Times Factors Used to Justify Decisions	418

Referring to Table 3, there were 173 "different" factors cited by the nine participants in the eight simulation exercises. Of these 173 factors, 82 were cited two or more times; therefore, the remaining 91 factors (173 - 82 = 91) were cited only once each. Thirteen (13) factors were used in two or more simulation exercises a total of 78 times. Overall, factors were cited 418 times as justification or reason for the decisions made in the simulations by the participants.

In addition to the enumeration of factors or variables as noted above, content analysis was performed to address three basic questions.

1) What factors were used in making decisions concerning the questions posed through the simulation exercises?

2) What was the priority associated with each factor used?

3) What were the information needs of the participants in making decisions concerning the questions posed through the simulation exercises?

Through the content analysis procedure, participant responses from the simulation exercises were converted to more objective and quantitative evidence to answer each of the three questions above.

What factors were used in making decisions concerning the questions posed through the simulation exercise?

For data presentation, the factors as cited by the participants were categorized into relatively independent major factors. These major factors represent facets of the proposed theoretical model for planning vocational education.[12] A test of the the theoretical model was to determine whether or not the factors cited by the participants were applicable to the model. Initially five major factors were identified from the proposed model. The factors used in making decisions by the participants were evaluated to determine which major factor they most clearly represented.

Some factors cited by the participants could not clearly be categorized into one of the five major factors. The participant factors, which could not be categorized into identified major factors, were clustered according to the degree of similarity they had with one another. An additional three major factors emerged from the clustering of participant factors for a total of eight major factors. After reviewing the proposed model for

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[12] Copa, George H. "Planning Vocational Education".

planning vocational education, the additional three major factors were found to also represent identifiable but perhaps less explicit, facets of the theoretical framework. The three major factors identified from the simulation were equal opportunity, legal, and mutual satisfaction.

Illustrative individual participant factors defining the focus or operational meaning of each major factor are presented in Table 4. The eight major factors are more operationally defined in Appendix C.

In a discursive examination of the individual factors, some of them may appear to fit into several major factors. If it was not apparent how a specific (individual) factor should be categorized or clustered, a context for the specific factor under consideration was established. The specific factor context was established by reviewing the tape recorded simulation exercise or individual position papers. Upon listening to the appropriate taped group session, additional pertinent information concerning the specific factor was identified. With this additional information, a context for the specific factor was established and a decision was made as to how that specific factor was to be categorized or clustered. For example, the specific factor "upgrading of existing occupations" was categorized under the major factor, mutual satisfaction, which translates into the combined needs of society and individuals (Table 4). The participant who first cited this specific factor made reference to increasing the personal satisfaction of people already employed and the potential for increasing the productivity of industry, all as a result of initiating training programs designed to upgrade existing occupations. Of course, this additional information was not included as part of the factor when it was cited in written form by the participant but became evident from the tape recorded group session dealing with that specific factor. To test the accuracy of this procedure of content analysis, a sample of specific factors from the total group, that could not easily be categorized or clustered, was selected and <u>again</u> content analyzed independent of the first content analysis. Very similar results were achieved the second time -- the specific factors were categorized or clustered under virtually the <u>same</u> major factors as in

TABLE 4

MAJOR FACTORS (CATEGORIES) AND THEIR OPERATIONAL DEFINITIONS

Major Factors	Operational Definition (Factors Cited by Simulation Participants)
Satisfaction	Individual Needs of People: preferred occupations of students, special needs of individuals, student interest, cost to students, ability to serve students, etc.
Satisfactoriness	Needs of Society: occupational demand, placement rate, employer acceptance, economic growth, occupational turnover rate, business and labor interest, etc.
Efficiency	Educational and/or Program Cost: staff and facilities availability, duplication of effort, cost is prohibitive, entry level program, cost-effectiveness, cost per student, etc.
Alternative Sources	Other Educational Sources: other agencies better tooled to provide training, apprenticeship approach, secondary education is sufficient, etc.
Quality	Educational and/or Program Quality: program prerequisites and organization, local support services, on-the-job training opportunities, program comprehensiveness, etc.
Equal Opportunity	Equal Opportunity for Education: vocational education should be made available to all who can benefit, career education for minorities, cultural goals of minorities are different, etc.
Legal	Legal Requirements: college degree program, vocational education act, professional occupation, skilled worker, limited training required, etc.
Mutual Satisfaction	Combined Needs of Society and Individuals: programs could provide useful training, needs of local area, documentation for need of programs, needs of nation, upgrading of existing occupations, etc.

the first content analysis. Consequently, as explained earlier, the context for each specific factor was established and a decision was made as to how the specific factors were to be categorized.

The major factors are relatively independent and indicate a context for the many specific factors cited by the participants. In other words, a frame of reference (eight factors) was established for summarizing the manner in which decisions in vocational program planning were justified during the simulation activity.

Table 5 illustrates how the frequency of use of the major factors varied between exercises and across all exercises in total. Remember, each exercise was designed around a different vocational education program planning question decision -- see Table 1. Factors pertaining to Satisfaction (Individual Needs of People), Efficiency (Educational and/or Program Costs), and Mutual Satisfaction (Combined Needs of Society and Individuals) were cited in every simulation exercise. Simulation exercises number one, "For What Occupations Could Vocational Education Provide Training," and three, "At What Level Should the Problem Be Offered," precipitated the total array of factors.

What was the priority associated with each factor used in making decisions concerning the questions posed through the simulation exercises?

To answer this question, several more specific questions were formulated. They were as follows:

1) Did the priority of factors vary between exercises (decisions)?
2) What were the priorities associated with the factors across all the exercises in total?
3) Did the priorities associated with factors vary between participants working specifically in vocational education and those who were not?
4) Did the priorities associated with factors vary between participants working at the state versus local educational agency level?
5) Were the priorities associated with factors stable between pre- and post-group interaction sessions?

TABLE 5

FACTORS CITED BY PARTICIPANTS
ACCORDING TO SIMULATION EXERCISE

Major Factors	Simulation Exercises								Factors Per Major Factor
	1. For What Occupations Could Vocational Education Provide Training	2. Where Should Programs Be Located	3. At What Level Should the Program Be Offered	4. Who Should Provide Training (Public vs. Private)	5. Manpower vs. People Needs	6. Should You Recruit	7. Vocational Education and General Education	8. Relationship Between Program Areas	
Satisfaction	3	8	2	6	8	2	7	2	38
Satisfactoriness	19	12	5	8	18	0	7	2	71
Efficiency	19	33	5	10	5	2	7	20	101
Alternative Sources	17	0	5	0	0	1	8	2	33
Quality	2	14	3	4	7	2	1	0	33
Equal Opportunity	3	0	1	3	1	19	0	0	27
Legal	61	0	3	0	5	3	1	3	76
Mutual Satisfaction	10	5	9	1	4	3	5	2	39
Factors Per Simulation Exercise	134	72	33	32	48	32	36	31	Total Factors: 418

Priority was inferred by the number of times specific factors within major factors were cited for justifying decisions by the participants. Referring to the question number one above, Table 5 indicates that the priority of legal factors dominated in terms of how often these factors were cited (61 times). Although satisfactoriness and efficiency were only cited 19 times each, these factors were never-the-less considered important in determining "For What Occupations Could Vocational Education Provide Training?" The three most important factors for exercise two, "Where Should Programs be Located?" were efficiency, quality, and satisfactoriness, respectively. Simulation exercise three elicited all eight factors at least once. Exercise four, "Who Should Provide Training (Public vs. Private)?", emerged with three prevalent factors -- efficiency, satisfactoriness, and satisfaction. In exercise five, satisfactoriness received the highest priority. Equal opportunity factors dominated exercise number six, "Should You Recruit?". Satisfaction, satisfactoriness, efficiency, alternative sources, and mutual satisfaction were the five dominant factors in exercise seven accounting for 34 of the 36 factors cited. Efficiency was cited almost 10 times more often than any single factor in simulation exercise eight, "Relationship Between Program Areas?"

What were the priorities associated with the factors across all the exercises (decisions) in total? Efficiency received the highest priority -- cited 101 times with factors relating to legal requirements and employer/societal needs (satisfactoriness) also emerging with high priority. The last column in Table 5 depicts the priority of the factors. A limitation of the analysis shown is that some exercises, particularly one and two, elicited many more specific factors and therefore biased the priority of specific factors summarized across all exercises. The eliciting of more factors by some exercises appeared to be partially inherent of the construction of the exercises and response forms rather than reflecting the importance of certain exercises (decisions). Also, the exercises eliciting the higher number of factors were the first two exercises during which time the participants were getting a "feel" for the simulation activity. Being less confident and established in their psuedo position, the participants cited more factors

to probably over-compensate.

To answer question 3 above, "Did the priorities associated with factors vary between participants working specifically in vocational education and those who were not?", two statistics were used[13] -- chi square (x^2) and the Kendall rank correlation coefficient called tau (T)[14]. The chi square statistic was used to determine if the vocational education participants differed from the participants not in vocational education concerning the number of times one type of factor was cited versus another. The x^2 statistic, based upon direct quantitative results, was deemed appropriate to identify differences in priority between the two groups when considering one major factor at a time. The Kendall tau coefficient test statistic was administered to the rankings of the collective eight factors between the two groups. This statistic compared the rankings -- all eight factors taken simultaneously -- of each group for an indication of the degree of agreement between group rankings of the factors. The participants were divided into vocational education and non-vocational education groups as shown in the "Major Concern" column of Table 2.

Table 6 below illustrates that no agreement existed regarding priorities associated with the factors between participants working in vocational education and those who were not when the ranking of all factors were considered at one time. Kendall's tau portrays this condition, T = .00. Viewing the factors separately and using chi-square analysis, the non-vocational education participants cited significantly more mutual satis-factors per participant member than did the vocational education partici-

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[13] Siegel, Sidney. Nonparametric Statistics for the Behavioral Sciences, McGraw-Hill Book Company: New Yrok, 1953, pp. 42-47 and 213-223.

[14] For an understanding of the concepts and theoretical rationale of the statistics used, refer to Hays, William L. Statistics. Holt, Rinehart and Winston, Inc., Chicago, 1963, pp. 336-348 and 647-655.

pants. The opposite was true for efficiency and legal factors.

TABLE 6

COMPARISON BETWEEN FACTORS CITED BY VOCATIONAL EDUCATION PARTICIPANTS AND NON-VOCATIONAL EDUCATION PARTICIPANTS

	Participants					
	Vocational Education (6)		Non-Vocational Education (3)			
Factors	Factors Cited	Rank	Factors Cited	Rank	x^2	T^a
Satisfaction	24	5	14	4	0.05	
Satisfactoriness	44	3	27	1	0.51	
Efficiency	78	1	23	3	4.61*	
Alternative Sources	22	6	11	5	0.00	
Quality	27	4	6	8	2.76	.00
Equal Opportunity	17	7	10	6	0.04	
Legal	66	2	8	7	15.53**	
Mutual Satisfaction	13	8	26	2	18.03**	

* .05 level of significance
** .01 level of significance
[a]Kendall's tau

"Did the priorities associated with factors vary between participants working at the state versus local educational agency level?" When all eight factors were taken simultaneously, the priority associated with the factors was more similar between participants working at the state level as opposed to the participants working at the local level than was the case in the previous comparison. Kendall's tau yielded .57 correlation which indicates a moderate amount of agreement between the two groups in terms of major factor rankings (Table 7). Inspecting the factors separately, efficiency and alternative sources factors were cited significantly more often by state level partic-

pants. The significance is indicated by the x^2 test statistic in Table 7.

TABLE 7

COMPARISON BETWEEN FACTORS CITED BY STATE LEVEL PARTICIPANTS AND LOCAL EDUCATIONAL AGENCY LEVEL PARTICIPANTS

	Participants					
	State Level (5)		Local Level (4)			
Factors	Factors Cited	Rank	Factors Cited	Rank	x^2	T[a]
Satisfaction	27	4.5	11	6	3.10	
Satisfactoriness	41	2	30	3	0.12	
Efficiency	68	1	33	2	5.20*	
Alternative Sources	27	4.5	6	8	8.56**	
Quality	18	7	15	5	0.00	.57
Equal Opportunity	17	8	10	7	0.34	
Legal	35	3	41	1	2.63	
Mutual Satisfaction	20	6	19	4	0.14	

* .50 level of significance
**.01 level of significance
[a]Kendal's tau

"Were the priorities associated with the factors stable between pre- and post-group interaction sessions?" The participants' individual responses were written on a carbon-backed response form from one simulation exercise and the responses were prioritized (i.e., ranked as to importance). Before meeting in the group interaction session, the carbon copy of each participant's individual response form was collected. After the group interaction session, the participants were told that they could add or delete any factors to/from their respective lists and/or they could reprioritize the original or the revised list of factors. The priorities associated with the factors were stable between pre- and post-group interaction sessions. The participants did add factors to their individual response list after the group interaction sessions, but the factors were all considered to be of less importance than their original list of factors.

What were the information needs of the participants in making decisions concerning the questions posed through the simulation exercises?

The information needs were classified according to the same major factor categorization scheme developed earlier for the individual factors. When a participant requested information, he/she had to also indicate the purpose or anticipated use of the information. This aided in the content analysis of the information requested -- for categorizing into major factors. Table 8 portrays "What information was requested?" and "Which information was requested by most participants?" As can be determined from Table 8, all eight major factors were represented by the information needs of the participants. Information regarding alternative sources and legal aspects was not of high priority, but information representing satisfaction, satisfactoriness, and efficiency was of high priority based on the number of times information of that type was requested. Quality, equal opportunity and mutual satisfaction was of "medium" concern to the participants as indicated by the number of times that type of information was requested - eleven, fourtenn, and ten respectively. Appendix D lists the information requested in the participants' own words and categorized by major factor.

"Was different information requested by participants working specifically in vocational education and those who were not?" According to the test statistic used, Kendall's tau, a moderate amount of agreement existed as to the type of information requested by the two groups (T = .59) when all categories were considered together. In other words, whether from vocational education or not, participants tended to request similar information for justifying decision regarding the questions posed in the simulation exercises. Table 9 illustrates the above information.

"Was different information requested by participants working at the state versus local educational agency level?" As noted in Table 10, state and local education agency level participants requested virtually identical information for decision-making in the simulation exercises. Kendall rank correlation coefficient was amazingly high, T = .94.

TABLE 8

INFORMATION REQUESTED BY PARTICIPANTS
ACCORDING TO SIMULATION EXERCISE

Categories	Simulation Exercises								Information Requested Per Category
	1. For What Occupations Could Vocational Education Provide Training?	2. Where Should Programs Be Located?	3. At What Level Should the Program Be Offered?	4. Who Should Provide Training (Public vs. Private)?	5. Manpower vs. People Needs?	6. Should You Recruit?	7. Vocational Education and General Education?	8. Relationship Between Program Areas?	
Satisfaction	0	1	1	2	5	8	1	1	19
Satisfactoriness	1	1	3	4	13	0	3	0	25
Efficiency	4	2	2	0	3	0	1	10	22
Alternative Sources	1	0	0	1	0	0	0	0	2
Quality	1	0	3	1	2	0	2	2	11
Equal Opportunity	0	0	0	0	0	14	0	0	14
Legal	0	0	0	0	0	1	0	0	1
Mutual Satisfaction	0	1	0	0	3	3	2	1	10
Information Requested Per Simulation Exercise	7	5	9	8	26	26	9	14	Total Information Requests: 104

TABLE 9

COMPARISON BETWEEN INFORMATION REQUESTED BY VOCATIONAL EDUCATION PARTICIPANTS AND NON VOCATIONAL EDUCATION PARTICIPANTS

	Participants				
	Vocational Education (6)		Non-Vocational Education (3)		
Categories	Information Requested	Rank	Information Requested	Rank	T[a]
Satisfaction	11	4	8	2	
Satisfactoriness	21	1	4	3	
Efficiency	12	2.5	10	1	
Alternative Sources	2	7	0	8	.59
Quality	8	5	3	4.5	
Equal Opportunity	12	2.5	2	6	
Legal	0	8	1	7	
Mutual Satisfaction	7	6	3	4.5	

[a]Kendall's tau

TABLE 10

COMPARISON BETWEEN INFORMATION REQUESTED BY STATE LEVEL PARTICIPANTS AND LOCAL EDUCATIONAL AGENCY LEVEL PARTICIPANTS

	Participants				
	State Level (5)		Local Level (4)		
Categories	Information Requested	Rank	Information Requested	Rank	T[a]
Satistafction	12	3	7	3	
Satisfactoriness	14	1	11	1	
Efficiency	13	2	9	2	
Alternative Sources	2	7	0	7.5	.94
Quality	5	6	6	4.5	
Equal Opportunity	8	4	6	4.5	
Legal	1	8	0	7.5	
Mutual Satisfaction	6	5	4	6	

[a]Kendall's tau

OBSERVATIONS OF THE SIMULATION PROCESS

In addition to the categorical and more objective data presented, several phenomena tended to emerge from the simulation process. Since the entire simulation process was recorded on audio tape or individual position papers, there was ample opportunity to "observe" each of the eight exercises. Analyzing the individual written responses of the participants on each exercise and observing the entire simulation process simultaneously, some interesting phenomena emerged. These were not apparent from the more objective results presented in this chapter and, at least some, cannot be empirically substaintiated. Nevertheless they emerged as a consequence of the total simulation process. The observations[15] are listed below:

1) At least some of the participants reflected their professional background, orientation, and/or educational preparation by the type of factors they cited for justifiying their individual positions in the exercises. For example, a participant with a counselor background (former professional position) cited considerably greater number of satisfaction factors (individual needs of people) than other participants who did not have that particular orientation to the field of education.

2) In general, some participants did not want to make certain types of decisions or commit themselves to a specific position and then attempt to justify that position in particular situations. More data was requested even after it became apparent that the data, however relevant to the decision, would not be of any assistance in making the decision. It appeared to the process observers that some participants, regarding specific decisions, expected to uncover a piece of data which would dictate the type of decision to be made.

3) When decisions had to be made on retrenchment, "traditional" programs (e.g., machine shop) continued to receive support for retention within the school even with data to the contrary --

[15] To retain the anonymity of the participants, the examples illustrating the observations were purposely general and/or contrived.

low placement rate, high cost program, minimum student interest, et cetera. Some participants did not want to believe the data if it contradicted their decisions regarding traditional programs.

4) The earlier simulation exercises precipitated more general factors while in the later exercises the factors cited became more specific. For example, an earlier factor was "the program is too costly" while later, when program costs were cited, that factor was not listed. Instead, factors such as "cost per student, operating costs, and program start-up costs are too great" were listed as justifications for a decision.

5) Factors cited by certain participants in the first few exercises were cited by other participants in the later exercises practically verbatim.

6) The second pilot test group which consisted of graduate students with varying professional experiences tended to cite more philosophical and theoretical factors than did the test group. These factors were primarily directed at changing the constraints of vocational education -- state and federal legislation. The actual test group, on the other hand, identified a greater number of operational and implementation factors than did the pilot group.

7) One participant was not able to rank his/her factors for importance after the group session since factors cited by other participants also appeared important and the number of factors were too many to consider for importance ranking.

8) In exercise 6, "Should You Recruit", the factors identified were not criteria for deciding the issue but seemed to indicate "provide opportunities for minorities to become informed" thereby dodging the issue of should one recruit students for vocational education.

9) Different factors were cited for justifying decisions depending on the time frame inherent in the decision. For example: a) Could vocational education provide training for bartenders? b) Should vocational education provide training for bartenders? c) Would you do it "tomorrow" within your program? The "could, should, and would" aspect for a decision elicited long-range, short-range, and implementation type factors for justifying decisions. To illustrate, the "could" question elicited factors such as "To provide bartender training is consistent with legislation." The "should" question was justified by such responses as "There is a demand for trained bartenders". The "would" question precipitated factors such as "The local political structure would dictate whether or not to offer bartender training."

10) The participants' decisions and consequently the factors cited were influenced by whether or not organizational needs were being met. For example, the type of administrative structure within a local school or whether that school had adequate political support affected the type of factors cited by the participants for a given exercise (decision).

11) All of the factors cited could be generalizable into three overriding concerns -- satisfaction (individual needs of people), satisfactoriness (societal-employer needs), and efficiency (cost for satisfying the needs).

CHAPTER IV

FACTORS, PRIORITIES, AND INFORMATION NEEDS IN PLANNING VOCATIONAL EDUCATION: VIEWS OF SELECTED EDUCATIONAL PLANNERS IN MINNESOTA

Planning in vocational education recently gained renewed impetus; one indicator of the concern for planning is its discussion in recently proposed federal legislation for vocational education. Recent educational changes in Minnesota and nationally have also increased the importance of "sound" vocational education planning. In order to improve the planning process it must be explicitly described and then scrutinized for its ability to result in plans which are consistent with the consequences intended by those supporting vocational education. Examining the planning process also aids in building an educational agency's planning capability. The purpose of this study was to identify the factors, priorities, and information needs deemed important by a small group of selected educational planners in Minnesota for planning vocational education.

In order to identify factors, priorities, and information needs, key decisions faced in planning vocational education were identified. To obtain data in a meaningful and objective manner, a series of eight simulation exercises were developed around the identified decisions. Results of participant positions and interaction during the simulation exercise were evaluated and summarized using content analysis procedures. Using a simulation and content analysis procedure meant developing a scenario with corresponding roles, issues, format, information base, analysis forms et cetera. Two pilot tests of the procedures were performed to determine the feasibility and viability of the scenario, simulation exercises, and content analysis method.

For the final simulation, individuals selected were experience in educational and/or vocational education planning and represented several groups who have input into the planning process for vocational education. The nine individuals in the sample represented person employed in vocational education and outside of vocational education, as well as persons employed at both state and local educational agency levels. The eight simulation exercises were conducted over a period of two days. Participants maintained a high degree

of interest and enthusiasm during the entire simulation activity. Content analysis was performed on the written individual position papers and on the tape recorded group sessions for each of the eight simulation exercises. There were 173 different specific factors cited by the nine participants in making the vocational education planning decisions which were the focus of the eight simulation exercises. Overall, factors were used 418 times as justification for decisions in the simulation by the participants. The 173 factors were categorized into eight major factors - satisfaction, satisfactoriness, efficiency, alternative sources, quality, equal opportunity legal, and mutual satisfaction. The conceptual scheme for categorizing factors was based on a proposed model for planning vocational education.[16] One of the uses of the results was to formatively evaluate this proposed model.

DISCUSSION OF RESULTS AND IMPLICATIONS FOR PLANNING VOCATIONAL EDUCATION

Before identifying implications of the results of the study for planning vocational education in Minnesota, some limitations of the study must be made explicit. First, only major program planning decisions were addressed through the eight simulation exercises. These decisions were selected because they represent several basic planning concerns (e.g. what, how, when, where); however, they are obviously not exhausive of all decisions made. Second, a sample of only nine individuals was used from which to collect the information. Although limited in number, they were selected to represent various types and levels of educational concern and genuine interest and experience in educational planning. Third, the use of a simulated context and subjective

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[16] Copa, George H. "Planning Vocational Education".

responses can lead to design and analysis bias. The use of content analysis procedures to summarize responses was an attempt to minimize bias of this kind. Fourth, the major factors used to categorize the specific factors cited by participants were drawn from a proposed planning model for vocational education; there may well be alternative ways of categorizing the factors. The interpretation of the implications, conclusions and recommendations presented below should be tempered by these limitations.

FACTORS

The eight simulation exercises generated a variety of factors used in justification of decisions. To reiterate, 173 specific factors were identified by the eight participants as being sufficiently different enough from each other to be listed separately. Some of the factors were listed in several of the simulation exercises. These 173 factors were categorized into eight major factors using a conceptual scheme hypothesized from a previously proposed model for planning vocational education. The eight major factors were indicative of concerns in planning vocational education:

1). SATISFACTION: Are the needs of individuals being met by the program under considration?

2). SATISFACTORINESS: Are the needs of society (usually, but not always, interpreted to mean industry or manpower needs) being met by the program under consideration?

3). MUTUAL SATISFACTION: Are the mutual needs of individuals and society being met by the program under consideration?

4). EQUAL OPPORTUNITY: Will <u>all</u> individuals concerned have an equal opportunity to attend the program if it is offered?

5). LEGAL: Is the program under consideration within the legislative mandate?

6). ALTERNATIVE SOURCES: Is there another agency which could more effectively and efficiently provide the type of training proposed by the program?

7). QUALITY: Are effective processes available to conduct the program?

8). EFFICIENCY: Will the proposed program be efficient in terms of resources used and output attained?

There are perhaps other conceptual schemes for categorizing the factors identified through the simulation exercises. However, one of the purposes of this study was to evaluate the proposed model for planning vocational education by observing if the many identified factors could be logically classified within the hypothesized major factors. Results indicated that in order to categorize all of the specific factors cited by participants, three major factors needed to be added to the five major factors identified before the study began. After more closely reviewing the proposed model for planning vocational education, it was found that the three additional factors were a part of the conceptual framework, although less explicit in nature. At a more aggregate level the principle factors to emerge were satisfaction, satisfactoriness and efficiency. Therefore, the results (within the limits of the sample and the exercises) were supportive and explicative of the proposed model for planning.

FACTORS AND PRIORITY

The priority of major factors was measured by the number of times specific factors within the major factors were cited in each exercise and across all exercises. Although each simulation exercise was designed around a different vocational education program planning decision, every major factor was not represented in each exercise. Exercises number one (For What Occupations Could Vocational Education Provide Training?) and number three (At What Level Should The Program Be Offered?) precipitated all of the eight factors. In addition, three factors - satisfaction, efficiency, and mutual satisfaction - were cited in every simulation exercise implying that these three factors may represent concerns for planners regardless of the type of decision being faced. On the other hand, certain major factors tended to dominate specific exercises. In exercise two (Where Should Programs Be Located?) and exercise eight (Relationship Between Program Areas?) efficiency was the most frequently cited factor. This domination by factors for given decisions suggests that certain factors have prime importance in certain decisions with other factors having secondary or supportive importance.

FACTOR PRIORITY AND PARTICIPANT GROUPS

The Kendall rank correlation coefficient was used to test the degree of agreement between vocational education participants and non-vocational education participants as to how each group ranked the eight major factors. Since Kendall's tau equalled zero for this comparison, no agreement existed between the two groups in ranking the eight factors. The implication is that the two groups were different in the priority given to the major factors in making program planning decisions for vocational education. A further implication is that decisions may be different or at least supported differently if individuals from outside of vocational education as well as from vocational education were involved in the planning process.

Using the Chi square test statistic for determining differences in priority between the two groups when considering one factor at a time, non-vocational education participants cited mutual satisfaction more often than did vocational education participants. The reverse occurred for efficiency and legal factors. The inference is that the two groups differed in terms of the importance the three factors have for justifying planning decisions or in their knowledge of materials, such as the constraints imposed by the Vocational Education Legislation.

When participants were divided into two groups representing state versus local educational agency levels, Kendall's tau (.51) indicated moderate agreement between the two groups. The two groups tended to agree as to the importance of the factor ranking when considered collectively. Taken independently, the state level group cited efficiency and alternative sources factors significatnly more than did the local education agency level group. An implication of this difference is that state level people are more concerned with a broader perspective when making program planning decisions for vocational education.

INFORMATION NEEDS AND PARTICIPANT GROUPS

Information related to a concern for satisfaction, satisfactoriness, and efficiency was requested more often by participants than any other type of information. The satisfaction, satisfactoriness, and efficiency information requested tends to parallel a dominant concern of the participants. That concern was "For a proposed vocational education program, does someone benefit - industry, people, or both?" And, "No matter who benefits from the program, is it cost-effective?"

The participants, when divided into their respective groups (vocational education versus non-vocational education and state agency level versus local agency level), had moderate and very high agreement, respectively, concerning the type of information requested. Kendall's tau was used to determine the degree of agreement between the groups. Generalizing, the participants requested similar types of information no matter what their affiliation -- local versus state level or vocational education versus non-vocational education. Constrasting the information requested with factors cited, it is suprising that vocational education participants versus the non-vocational education group did not agree regarding the priority of factors cited yet had moderate agreement concerning information requested. One extrapolation may be that individuals using similar information interpret it differently when planning vocational education programs.

CONCLUSIONS

The purpose of this study was to identify the factors, priorities, and information needs important in planning ovcational education according to a samples of educational planners in the State of Minnesota. The following conclusions are based on the results of the study:

1. Many factors were used in making decisions in planning vocational education programs.
2. The 173 different specific factors cited by the nine participants

were able to be categorized into eight major factors identified through a proposed model for planning vocational education thereby supporting the structure proposed in the model. Three of the eight factors emerged from this study. Each major factor was operationally defined by the specific factors categorized under them.

3. The priority of major factors cited varied between the exercises (decisions) of the simulation activity.
4. The priorities associated with the major factors across all exercises were as follows (high to low); efficiency, legal, satisfactoriness, mutual satisfaction, satisfaction, quality and alternative sources (tie), and equal opportunity.
5. Participants working specifically in vocational education and those who were not disagreed (Kendall's tau = .00) as to the priority rank order of the major factors.
6. Participants working at the state level versus those working at the local level had moderate agreement (Kendall's tau = .51) as to the priority rank order of the major factors.
7. The priorities of specific factors were stable between pre- and post-group interaction sessions.
8. Many types of information were requested in making program planning decisions in vocational education. A total of 77 different types of information was requested by participants.
9. Vocational education participants versus non-vocational education participants agreed moderately (Kendall's tau = .59) as to the priority rank order of the information requested.
10. Participants working at the state level versus those working at the local agency level highly agreed (Kendall's tau = .94) as to the priority rank order of the information requested.
11. Eleven author observations related to program planning for vocational education were identified from the simulation process. These observations emerged as more subjective implications of the total simulation process.

RECOMMENDATIONS

The results of the study and observations of the simulation process suggest continued interest in explicating the planning process for vocational education. The following recommendations may help in making the planning process more explicit and may lend credibility and/or suggest changes for the present vocational education planning process in the State of Minnesota:

1. Replicate this study to assess the reliability of findings with more groups of participants in this and other states. Studies should also be designed to:
   a) determine how much objective data is required to overcome a personal belief or value concerning specific aspects of vocational education;
   b) analyze state and local politics and their influence on vocational education planning; and
   c) relate planners professional background and experiences to the types of factors cited;
   d) incorporate participants representing industry, diverse social concerns (e.g., economic welfare, legal and moral social services), and potential vocational education students as well as present and past students.
2. Use the simulation exercises as a teaching strategy to assist vocational education administrators in becoming aware of and in dealing with the factors and their interaction in planning vocational education.
3. Initiate a program of research and development to identify and/or produce and disseminate the information found to be of high need for making program planning decisions in vocational education.
4. Develop a strategy for dealing with the many factors involved in planning vocational education which is explicit, rationalized, and as objective as possible, and leads to "better" and more "efficient" planning decisions.
5. Enhance communication between vocational education and non-vocational education planners with focus on the values both groups hold important in charting the future of vocational education.

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APPENDIX A

DESCRIPTION OF PSEUDO STATE

Not for Duplication or Quotation
Without Permission

A SERIES OF SIMULATION EXERCISES DIRECTED AT
CRITICAL ISSUES IN PLANNING VOCATIONAL EDUCATION

BACKGROUND INFORMATION

Vocational Education Planning Project
George H. Copa
Erwin K. Geigle
Donald E. Irvin

Minnesota Research Coordinating Unit for Vocational Education
Department of Vocational and Technical Education
University of Minnesota
Minneapolis, Minnesota
1974

INTRODUCTION

The purpose of these exercises are to: (a) identify the variables which must be considered in planning vocational education programs, (b) describe the steps in the planning process, (c) identify the kinds of information needed for planning, and (d) identify the priorities given to each of the relevant variables. The issues treated in the exercise evolve during the normal course of operating vocational education programs. The exercises were developed from actual cases in the file of vocational education administrators -- only the names have been changed to protect the guilty.

SETTING

The vocational programs involved in these exercises are located in the State of Adams. Adams is a midwestern state which is rectangular in shape. It is approximately 300 miles east to west and 200 miles north to south. A map of Adams is shown as Figure 1. The capitol, Supr, is located near the center and is the headquarters for all state government offices.

The vocational programs of interest are situated at Boot County which is located in the northwestern part of Adams. A post secondary area vocational-technical institute (AVTI) serving primarily the residence of Boot County is located at the county seat at Girth. The AVTI of Boot County is however <u>also</u> available to all other residents of the state of Adams. A mpa showing the highways and communities in Boot County is shown as Figure 2.

Three school districts in Boot County are most specifically involved in these exercises. They are Poll, Flank, and Crop School Districts. These three school districts have joined together for the purpose of providing additional secondary vocational education through the Shank Secondary Vocational Center located at Flank. A map describing the geography of these school districts is also shown in Figure 2.

CHARACTERS

J. Rowe	Director, Planning and Development Section, Division of Vocational-Technical Education, State Department
K. Nay	Supervisor, New Porgrams, Program Operations Section, Division of Vocational-Technical Education, State Department
W. Crawford	Consultant to Commissioner of Education, Planning and Curriculum, State Department
R. Land	Director, Girth Post-Secondary Area Vocational Technical Institute
J. Mirth	Director, Shank Secondary Vocational Center
L. Saxor	Superintendent, Poll School District
K. Klone	Vocational Teacher, Flank School District
D. Jinks	Director Vocational Education, Crop School District
C. Mayes	Representative in State Legislature from Book County

FORMAT

The issues treated in these exercises will be handled via communications to you as one of the above characters. Through the communications, you will be informed of the issue at hand and how it arose. You will be asked to respond to the issue with a brief written statement. A form entitled "My Position" has been prepared for recording your statement. An "Information Bank" which contains base data for the state, county, and school district is

available for your use. Simply complete an "Information Request" form and the available information will be supplied to you for use in stating your position with respect to a given issue.

Following the completion of your position statement, a committee meeting of all persons involved will be held to resolve the issue for the state and schools involved. Be prepared to explain and justify your position as well as compromise. Except for issue one, all issues will revolve around the adding and/or deleting of vocational education courses to and from the existing programs of vocational education at the Girth Post-Secondary Area Vocational-Tedhnical Institute, the Shank Secondary Vocational Center and the Poll, Flank, and Crop High School Vocational Education Departments. As you may have determined, there are three secondary vocational high schools (Flank, Crop, and Poll), one secondary vocational center (Shank at Flank), and one post-secondary area vocational-technical institute at Girth.

TABLE 1

POPULATION OF SELECTED GEOGRAPHIC AREAS

AREA	POPULATION
State of Adams	3,804,971
Metropolitan Area	1,874,380
Non-Metropolitan Area	1,930,591
Economic Region 7	299,000
Boot County	57,718
Girth	23,641
Flank	6,377
Crop	1,596
Poll	640

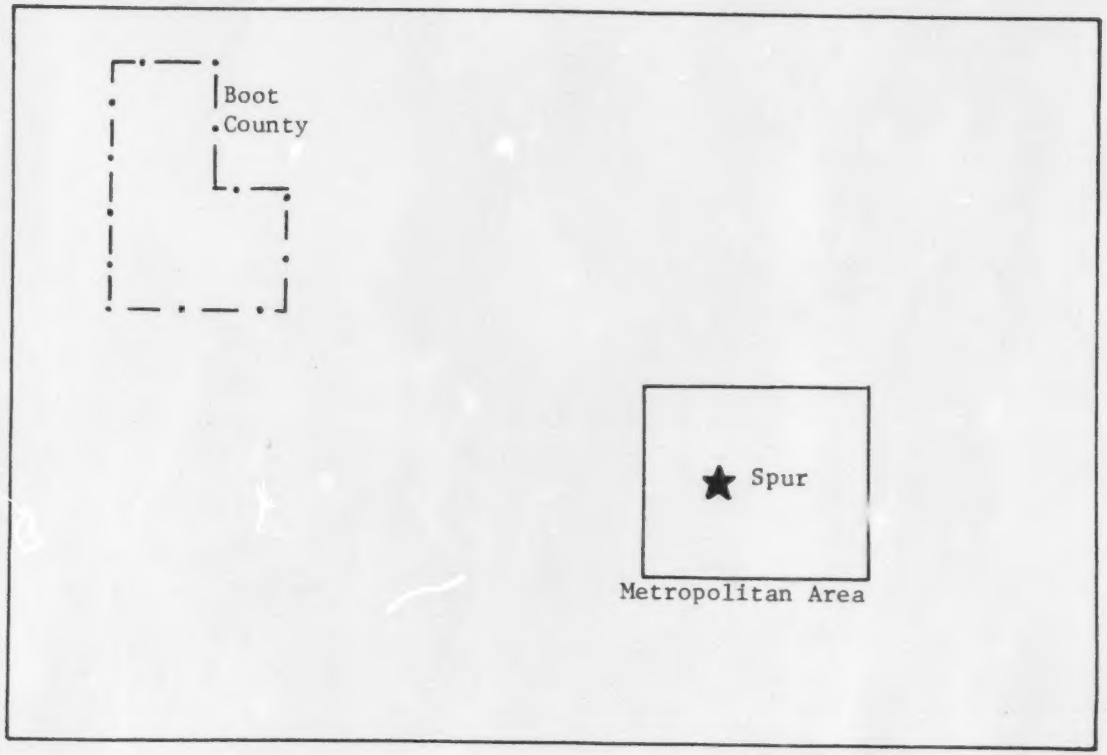

Figure 1. State of Adams

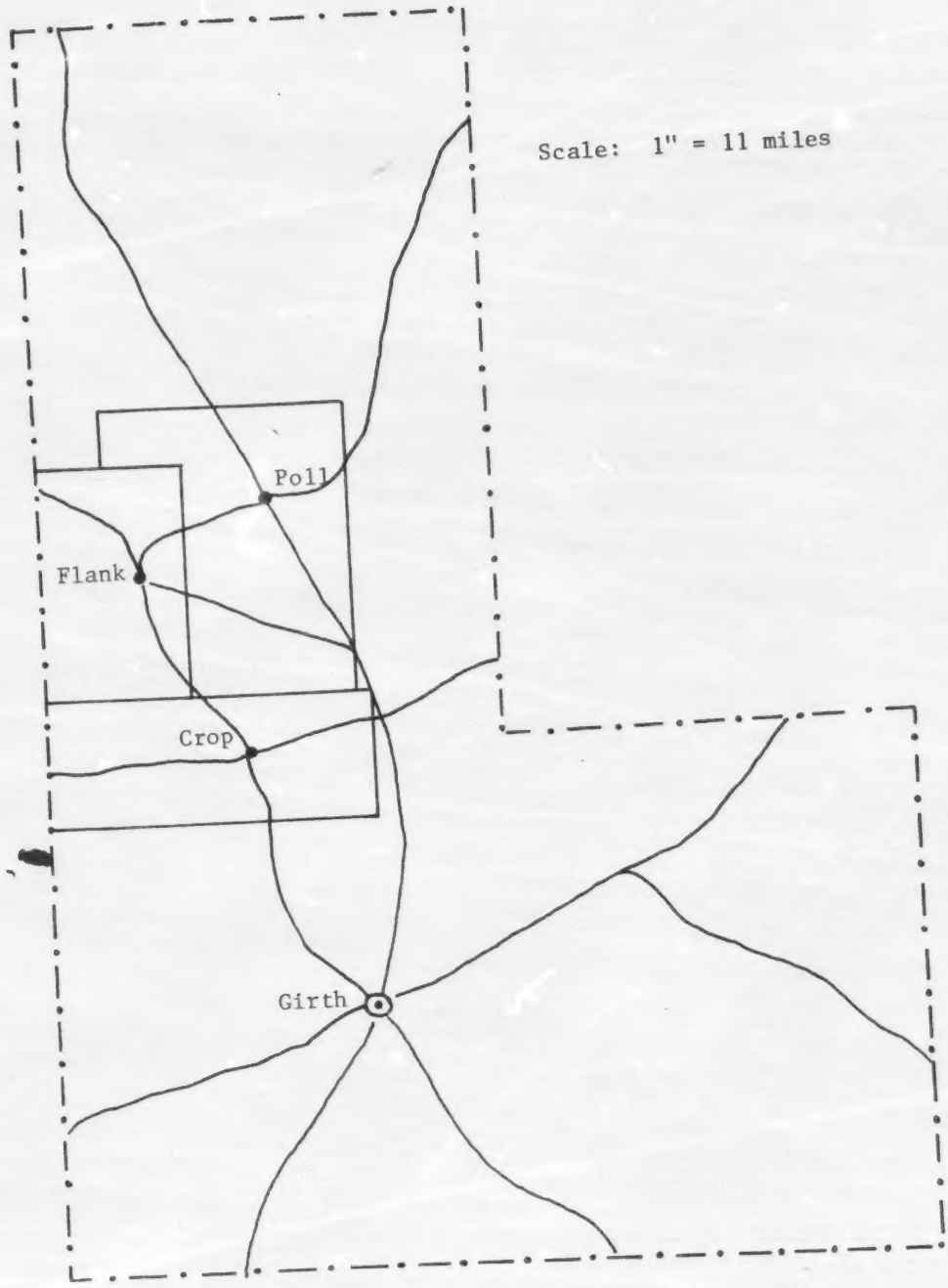

Figure 2. Boot County: Crop, Flank, and Poll School Districts with county seat at Girth.

APPENDIX B
SAMPLE SIMULATION EXERCISE

MEETING MANPOWER VS. PEOPLE NEEDS

GIRTH AREA VOCATIONAL-TECHNICAL SCHOOL

702 MAPLEWOOD DRIVE

GIRTH, ADAMS

72444

J. Rowe
Director, Planning and Development Section
Division of Vocational-Technical Education
State Department of Education
140 North Drive
Spur, Adams 74252

Dear J. Rowe:

In the process of planning our curriculum for next year, we are encountering a perennial problem: What to do about programs that have high enrollment but low occupational placement. In the past there has been considerable disagreement among the members of our planning committee about the proper course of action in this situation. Some have advocated phasing out these programs while others have urged their continued operation.

The problem facing us this year appears to be particularly sensitive in the following program areas:

1. Automotive Mechanics
2. Cosmetology
3. Farm Equipment Mechanics
4. Telephone Communication

Our next planning committee meeting will be held on _____ at which time this problem will be the major topic of discussion, I would like you to attend and present your position and criteria for keeping or dropping a program (i.e. placement rate, student demand). If you cannot attend, please send me this information.

Sincerely,

R. Land
Director, GAVTI

Memo

TO: GAVTI Planning Committee

FROM: R. Land, Director, GAVTI

Just a reminder that the next planning committee meeting will be held on _____ in the main conference room at GAVTI.

The primary topic for this meeting will be developing a strategy for dealing with programs for which there is a high student demand but a low rate of occupational placement. It appears that our auto mechanics, cosmetology, farm equipment mechanics, and telephone communications programs presently fall into this category.

I have asked J. Rowe to attend this meeting so that we may get the State Department's view on this problem (see attached letter). As I asked J. Rowe, I would like you to each describe your position on what action should be taken with respect to these programs (i.e. keep or phase out) preliminary to our meeting. In your position statement, try to identify the factors you considered and how you weighed them in forming your position

Name_____

MEETING MANPOWER VS. PEOPLE NEEDS

Program	ACTION to be Taken on PROGRAMS	List the factors used in justifying your action	Rank the factors (1= most important)
Auto Mechanics			
Telephone Communications			
Cosmetology			
Farm Equipment Mechanic			

APPENDIX C

FACTORS CITED BY PARTICIPANTS*

SATISFACTION

1. Student needs assessment (2)
2. Preferred occupations by potential students
3. Special needs individuals
4. Student interest (8)
5. Proximity to potential students (4)
6. Service to several school populations (2)
7. Cost to student (4)
8. Ability to serve student needs (private school)
9. Student numbers in program are small (2)
10. Political pressure precipitated by student demand
11. Student interest is lacking (2)
12. Minority interests must be considered (2)
13. Student interest is high (3)
14. Serve student needs
15. Parent interest
16. Avoid slotting students into either voc.ed. or gen. ed.
17. What is best for students
18. Enrollment projections

SATISFACTORINESS

19. Societal needs assessment
20. Potential placement problem
21. No occupational demand (2)
22. Programs could be developed, but training is limited (4)
23. Occupations too deiverse for useful training (3)
24. Image of occupation is not good
25. Public would approve (2)
26. Acceptance by employers is doubtful
27. Public would disapprove (2)
28. Political pressure (judgement by local community)
29. Occupational demand (10)
30. Occupational need in geographic area (4)
31. Future growth of industry
32. Economic growth of area (5)
33. Program is consistent with industry needs
34. Industrial demands met by private school (7)
35. Efficiency & effectiveness for meeting geographic societal needs
36. Occupational demand in state is medium (7)
37. Placement rate is low (5)
38. Social needs being met (i.e. income saving)

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* The number in parentheses after a factor refers to the number of times the specific factor was cited by participants. No number after a factor indicates that the factor was cited only once.

39. Improve placement effort
40. High turnover rate in occupation (2)
41. Pattern of business activity in area or state
42. Occupational demand on state basis (5)
43. Competencies needed, therefore, vocational education
44. Business and labor interest

EFFICIENCY

45. Resources availability (4)
46. Duplication of effort (training already available) (3)
47. Vo. ed. best prepared to provide training (8)
48. Occupation is too global in nature
49. Unwise use of resources
50. Cost is prohibitive (3)
51. Time required is too great
52. Low cost to initiate
53. Location of other institutions offering program (11)
54. Facilities availability (6)
55. Staff availability (4)
56. Local industrial support (4)
57. Location of required resources (4)
58. Building of educational system
59. Establishing vs. developing school (4)
60. Level of program (3)
61. Type of program
62. Entry level program (2)
63. Cost-effectiveness (2)
64. Comparative costs of private vs. public (4)
65. Location of institution (2)
66. Cost of program implementation in public schools
67. Duplication of effort (2)
68. Program duplication with other institutions (3)
69. Cost per student (5)
70. Recruit has undesirable connotation - eliminate it
71. Understanding minority problems for admissions counseling
72. Vocational education will serve several high schools
73. Limited duplication with post-secondary programs (3)
74. Other secondary programs do not exist
75. Current curriculum or programs offered
76. VocEd should build on gen. ed. not replace it
77. Maintain existing programs but rearrange curriculum (2)
78. Reduce supplies & equipment budget
79. Staff age and status (3)
80. Reduce number of programs (3)
81. Alternative methods of instruction
82. Class load capability

ALTERNATIVE SOURCES

83. Other agencies better tooled to provide training
84. Training better accomplished by other agencies (3)
85. Occupation is too specialized (2)
86. Cooperative training is required
87. Apprenticeship approach
88. Secondary education is sufficient (5)
89. On-the-job training is sufficient
90. Specialized training required (6)
91. Strengthen industry-involved program
92. Relevant cooperative training
93. Cooperative programs for minorities
94. Academic orientation of general education (2)
95. High school program offers job entry skills
96. General education complements vocational education (4)
97. General education should continue with programs
98. Transfer of skills from secretary to clerical
99. Secondary training potential

QUALITY

100. Prerequisites very demanding
101. Program organization is questionable
102. Need of occupation for proximity to job market (2)
103. Availability of support services requisite for program
104. Opportunity for on-the-job training
105. Receptivity of community & staff to program (3)
106. Mix of fit with existing programs (4)
107. Political decision-making support
108. Comprehensiveness of program (2)
109. Articulation with other programs possible
110. Program quality based on follow-up and delivery (4)
111. Program quality is questionable (2)
112. Study reasons for low placement (3)
113. Improve programs
114. Need to maintain occupational mix in school
115. Dropout rate of minorities is too high (2)
116. Teacher interest

EQUAL OPPORTUNITY

117. Integrate with education as a whole based upon analysis
118. Voc. Ed. should be available to all who can benefit (2)
119. Program is available to a larger geographic area
120. Program availability in private sector
121. Desirability of dual vocational education opportunities (2)
122. VocEd opportunities should be local
123. Cultural goals of minorities are different
124. Employ minority counselors to soften cultural interface
125. Minority orientation & Counseling is needed (3)
126. Minority enrollment is limited to three programs
127. Career day for minorities
128. Career education for minorities in public school (2)
129. Improve minority status via education
130. Remedial training for minorities to compete for admittance
131. Utilize minority graduates to challenge other minorities
132. Provide pre- & post-program counseling
133. Placement potential should be identified for minorities
134. Career information opportunity (2)
135. Define target populations for recruitment
136. Minroity groups & agencies can identify target populations
137. Disproportionate representation of minorities in labor force

LEGAL

138. College degree (4 yr.) not required (3)
139. Training consistent with vocational education act (2)
140. Logical for voc. ed. to provide training (8)
141. Traditional voc. ed. program area (3)
142. Professional Occupation (4)
143. All occupations "could be" under the law (15)
144. Skilled worker occupation (8)
145. Limited training needed (16)
146. Semi-skilled (4)
147. Sub-professionals and technicians
148. Statewide placement is minimally acceptable (state plan) (5)
149. Minority representation on advisory baord (2)
150. No problem exists, therefore, no need to recruit
151. Is voc.ed. a part of general education or a separate entity
152. Define organizational objectives
153. Program goals consistent with organizational goals (2)

MUTUAL SATISFACTION

154. Programs could be mounted to provide useful training (9)
155. Provide entry level training, retraining, and upgrading
156. Needs of local area
157. Needs of state
158. Needs of region
159. Needs of nation
160. Needs based on trend analysis
161. Upgrading of existing occupations (4)
162. Impact of program is limited
163. Documentation for need of program (4)
164. Public institutions contract with private schools for services
165. More data is needed
166. Training for local job market (local students)
167. Limit enrollment to most qualified students
168. Follow-up data (long range) is needed
169. Data base profile of minorities is needed (2)
170. Opportunities for self-actualization should be made explicit
171. More data required (3)
172. Educational opportunities beyond high school (3)
173. Placement rate is high

APPENDIX D

INFORMATION REQUESTED BY PARTICIPANTS*

SATISFACTION

1. Needs assessment
   - Student - local, regional, state
   - Vocational opportunities - present & future (local, regional, national)
2. Needs assessment of student
   - Interest & employment opportunity
   - Industry jobs seasonal?
3. Type of student (geographic origin) in attendance at private institute & where are they become employed
4. Socio-economic data on families residing in state
5. Other program offerings at the school
6. Student demand for programs for past three years
7. Enrollment in AVTI programs (four) at local & state levels
8. Number of applicants for popular programs at the school
9. Cost per student of the four programs
10. Minority population data for county and state (6)
11. Do minority agencies conduct training programs?
12. Follow-up data on high school graduates in county
13. Programs and student enrollment at secondary vocational center
14. Enrollment of present programs

SATISFACTORINESS

15. Number and age of people employed in each occupation in the state
16. Employment data of motel-hotel occupations (metro & rural areas): Current employment & projected demand
17. Level & type of positions currently needed
18. Which jobs have greatest number of vancies
19. Skills/personnel need of industry

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* The number in parentheses after an information request refers to the number of time the specific piece of information was requested by participants. No number after an information request indicates that the piece of information was requested only once.

20. How much of job demand is being met by private schools? (2)
21. How many people need to be trained?
22. What are the manpower projections of the four programs in question (5)
23. Placement rate of the programs (4)
24. Cyclical manpower data of the occupations (3 years)
25. Projections (programs in question)
26. Annual turnover in cosmetology
27. Locations of other AVTI's in state
28. Annual job openings (new and replacements) correlated to the vocational-technical offerings
29. Types of jobs currently available for conservationist training program graduates (local & state) (2)
30. Projected occupational demand in conservation

EFFICIENCY

31. Occupational mix within Boot County & State of Adams (include business volume which have these occupations)
32. Post-secondary program opportunities available in Adams (6-24 mo.)
33. Number of high school programs with number of students who have graduates that have entry level skill in a specific occupation
34. Where do students select educational opportunities in relation to their home area
35. Existance of similar programs in state on high school and/or post-secondary level (2)
36. Funding of programs at each level
37. Cost of programs at each level
38. Same titles & their placement rate (2)
39. Current enrollment in programs with number of sections & staffing patterns
40. Conservation programs at the AVTI
41. Current budget in detail of AVTI (2)
42. Operational budget breakdown (3)
43. Program costs
44. Program effectiveness data beyond placement & cost
45. Sources of projected income
46. Length of programs
47. Number of times program is offered in given period and/or number of sections offered

ALTERNATIVE SOURCES

48. Number of private schools & programs offered
49. Type of program offered by the private institute (include number of graduates)

QUALITY

50. Apprenticeship programs operating in Boot County
51. Industry jobs seasonal?
52. Skills or competencies required for occupations
53. What specific occupations would the post-secondary (AVTI) program train for
54. Follow-up data on both private & public training programs
55. Follow-up data on the programs (students graduated) (2)
56. Training required for positions in conservation related occupations
57. Student school population & biology program enrollment in the high schools or the vocational center
58. Program offerings & instructor assignments
59. Teachers' salaries by program

EQUAL OPPORTUNITY

60. Work force minority data (2)
61. Minority enrollment in vocational programs (specifically at AVTI's) (5)
62. Secondary vocational enrollments of minorities in school district (2)
63. Admission policies & procedures for AVTI
64. Present recruiting policies
65. Present orientation & counseling for target population
66. School dropout rates of minorities in grades 10-12 (county)
67. Minority membership on vocational advisory committees

LEGAL

68. Affirmative action plan of the school

MUTUAL SATISFACTION

69. Student interest in motel-hotel occupations (metro & rural areas)
70. Student demand for programs (short & long range) and job openings in occupations relating to programs
71. For the programs in question
    - Total student enrollment
    - Direct & indirect job placement
72. Inventory sheet of information available
73. Minority employment figures & job categories (county & state) (2)

74. Number of minority businessmen or employees (local & state)
75. Vocational curriculums of the member schools involved with the vocational center
76. Follow-up data of secondary school graduates in county
77. Statement of goals for the institute & programs